Space Weather Forecast

Issued on Tuesday, 29 November 2022 at 13:27 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of G1/Minor Geomagnetic Storm intervals through the period.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low in the past 24 hours, with a single common-class flare. There are currently two numbered sunspot regions on the visible disc. One is located close to the southwest limb, and is soon to rotate out of view, and the other is now centre disc in the northern hemisphere. Both regions appear relatively stable.

No new Earth-directed CMEs have been observed in available imagery.

Solar Wind / Geomagnetic Activity: Solar wind parameters were indicative of positive coronal hole high speed stream influences, perhaps with some embedded CME influence. Solar wind speeds were initially strong, before falling back to elevated during the early hours of 29th. Wind speeds have since risen erratically, fluctuating between elevated to strong. The interplanetary magnetic field started moderate before gradually falling back to weak. The north south component followed a similar pattern but with the majority within the negative sector, and with the largest fluctuations at the start of the period. Geomagnetic activity was initially Quiet (Kp 1-2) before becoming Unsettled to Active for the remainder of the period (Kp 3-4).

Energetic Particles / Solar Radiation: No solar radiation storms were observed during the period.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to remain Very Low over the forecast period, with a chance of isolated C-class flares, and just a very slight chance of isolated M-flares.

Solar Wind / Geomagnetic Activity: No Earth-directed coronal mass ejections are expected during the period. Solar winds are currently elevated due to the connection to either coronal hole 48 or coronal hole 49. The next solar wind enhancement is expected either late on 30th Nov or early on 1st Dec due to the arrival of the high speed stream from coronal hole 51.

Geomagnetic activity is expected to be often Unsettled, with occasional Active intervals, and a chance of isolated G1/Minor storm intervals. The chance for G1 is greatest from late 30th or during 1st due to the arrival of the large coronal hole.

Energetic Particles / Solar Radiation: No solar radiation storms are currently expected during the forecast period.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	30	30	40	30
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	5	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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